IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT:	Stewart et al.
SERIAL NO.:	09/631,185
FILED:	August 2, 2000
EXAMINER:	Unknown
GROUP ART UNIT:	Unknown
FOR:	METHOD AND SYSTEM FOR CREATING A CRYSTALIZATION RESULTS DATABASE

Assistant Commissioner of Patents & Trademarks
Washington, D.C. 20231

PROTEST UNDER 37 CFR 1.291(a) OF PATENT APPLICATION

Dear Sir:

The above patent application for U.S. Patent Application No. 09/631,185 is protested. Reference to the claims in the pending application are made with respect to the claims of the published PCT application (Exhibit A).

35 U.S.C. § 102

Claims 1-3, 7-11, 18, 20, 24-27, 31-37, 71 and 89 are anticipated by Gester (Exhibit B).

PCT International Publication Number WO/04361 to Gester

Claim 1

The Gester patent (Exhibit B) discloses all the elements of the claim 1. Gester discloses an observation system for observing the results of crystallization trials [a video camera 12 having a focal window 16 and a tray 18 having wells that contain the crystals to be examined (page 4, line 15 to page 5, line 2)], a data input system for inputting the results of observing crystallization trials and related information [a keyboard 34 connected to the central processing unit 24 to input pertinent data (page 5, line 3 to line 9 and page 5, line 23 to 25)], and a database generator coupled to the data input system for receiving the results of observing crystallization trials and related information to create a database that stores the results of observing crystallization trials and related information [the central processing unit

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24 stores various parameters of each crystal specimen on the data storage media 32 and on the hard drive 40 (page 6, line 3 to line 26)]. Gester discloses all of the features of claim 1, and claim 1 is anticipated by Gester.

Claim 2

Claim 2 is also anticipated by Gester. Claim 2 requires that the observation system includes an optical system for observing a plurality of trays that include the results of a crystallization trial, and further requires a positioning system for selectively positioning a tray of the plurality of trays in an observation position. Gester discloses an observation system having an optical system for observing a plurality of trays 18 including the results of a crystallization trial (as illustrated in Figure 1 of Gester, optics and LCVR are used to examine the plurality of trays 18 in the focal window 16 of a video camera 12). Gester also discloses a positioning system (as disclosed on page 6, lines 28-31, a motorized mechanism 20 moves a moveable stage 22 to position a tray well 18 in the focal window 16 of the video camera 12) for selectively positioning a tray 18 in an observation position. Claim 2 is anticipated by Gester.

Claim 3

Gester anticipates claim 3. Gester discloses that the positioning system (the motorized mechanism 20 and moveable stage 22) is coupled to and controlled by the database generator (the central processing unit 24). As disclosed on page 4, lines 24 to 29 and on page 6, lines 28 to 31, the central processing unit 24 controls the activation of the motorized mechanism 20 and the position of the stage 22 by generating appropriate signals on the output line 25. Gester anticipates claim 3.

Claim 7

Claim 7 is anticipated by Gester. Claim 7 claims that the data input system includes a display for displaying data as pictographs. On page 5, line 23 to page 6, line 2, Gester discloses a video monitor 36 used with the keyboard 34 to input data pertinent to a particular crystal specimen. Gester also discloses pictographs of the crystal specimens and the displayed data as illustrated on pages 10, 11, 13 and 15 of Appendix A. Claim 7 is anticipated by Gester.

Claim 8

Claim 8 is anticipated by Gester. Gester discloses that the data generator (the central processing unit 24) includes a programmed data processor that processes the results the observing crystallization trials and a storage system (data storage device 32 and hard drive 40) for storing the results of the processing. As disclosed on page 5, lines 16 to 18, the central processing unit 24 stores the images from the video camera 12 on a data storage device 32 after acquisition of the output signal from the video camera 12. As disclosed on page 6, lines 15 to 20, the use of a relational database allows the data to be analyzed, sorted, correlated and otherwise manipulated under software control by the central processing unit 24. Therefore, the central processing unit 24 processes the results of the crystallization trials, and Gester anticipates claim 8.

Claim 9

Claim 9 is anticipated by Gester. Claim 9 claims that the programmed data processor includes a program having a plurality of database managers. As disclosed on page 6, lines 12 to 20 and illustrated in Appendix A, pages 10-11, the optical images of the crystals and crystal parameters are stored in a database. The database includes information such as protein type, protein buffer, reservoir buffer, drop additive, precipitating agent, and concentration, and this information is managed by the central processing unit 24 and stored in a database. Gester discloses a programmed data processor (central processing unit 24) including a program having a plurality of database managers. Claim 9 is anticipated by Gester.

Claim 10

Claim 10 is anticipated by Gester. Claim 10 requires a new trial manager for managing information relating to a crystallization trial set up. As disclosed on page 7 of Gester and illustrated in Figure 3, after the optical image of the crystal specimen is stored on the data storage device 32 or the hard drive 40, the central processing unit 24 generates an output signal to move the stage 22 and position the next well 18 in the focal window 16 of the camera 12, beginning a new trial. The central processing unit 24 manages information relating to the crystallization trial set up, and Claim 10 is anticipated by Gester.

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Claim 11

Claim 11 is also anticipated by Gester. Gester discloses a drop composition builder that captures information relating to crystallization drop components. As shown on pages 10, 11 and 14 of Appendix A, the computer window shows a data field that displays information relating to a drop additive, such as sodium acetate or MOPS. Gester discloses capturing information that relates to crystallization drop components. Gester discloses a new trial manager (the central processing unit 24) including a drop composition builder to capture information relating to crystallization drop components as claimed in claim 11, and Claim 11 is anticipated by Gester.

Claim 18

Claim 18 is anticipated by Gester. Gester discloses an existing trial manager (the central processing unit 24) that manages information relating to an existing trial. As disclosed on page 5, lines 1 and 2, the central processing unit 24 controls the ability of the system to focus on the crystal specimen. Page 5, lines 16 to 18 of Gester discloses that the central processing unit 24 also stores the crystal specimen image on a storage device 32. The central processing unit 24 also controls lighting of the specimen (page 5, lines 10-15). The central processing unit 24 manages the information relating to the existing trial, and Claim 18 is anticipated by Gester.

Claim 20

Claim 20 is anticipated by Gester. Gester discloses that the existing trial manager (the central processing unit 24) includes a trial observation recording builder that captures crystallization trial results. Gester discloses on page 5, line 29 to page 6, line 2, that the central processing unit 24 uses software templates displayed on the video monitor 36 to input data pertinent to the crystal specimen, including notes and scores, and to eliminate entry of redundant information. Gester also discloses on page 8, lines 24-26 that the program, which is executed by the central processing unit 24, scores or evaluates the crystal images and then stores the score or evaluation as one of the crystal parameters on the storage device 40. Pages 10, 11 and 12 of Appendix A illustrate computer windows that include data fields which illustrates the capture and/or display of the crystallization trial results. (score field). Claim 20 is anticipated by Gester.

Claim 24

Claim 24 is anticipated by Gester. Gester discloses a solution manager (the central processing unit 24) that manages information relating to solutions. Gester discloses that the optical images and crystal parameters are stored in a database, and a relational database allows the data to be analyzed, sorted, correlated and manipulated under software control by the central processing unit 24. Pages 10, 11 and 14 of Appendix A illustrate computer windows that include data fields. The data fields contain information relating to solutions, such as concentration, volume and pH. The central processing unit 24 acts as a solution manager to store analyze, sort, correlate and manipulate these crystal parameter in the database. Gester discloses a solution manager that manages information about solutions, and Claim 24 is anticipated by Gester.

Claim 25

Claim 25 is anticipated by Gester. Gester discloses a solution manager (the central processing unit 24) that includes a solution builder that captures information relating to solutions. Pages 10, 11 and 14 of Appendix A illustrate computer windows that include data fields. The data fields contain information relating to solutions, such as concentration, volume and pH. The central processing unit 24 acts as a solution manager to store analyze, sort, correlate and manipulate these crystal parameter in the database. Gester discloses a solution builder that manages information relating to solutions, and Claim 25 is anticipated by Gester

Claim 26

Claim 26 is anticipated by Gester. Gester discloses a solution manager (the central processing unit 24) comprising a solution builder to manage information relating to solutions including buffering agents, pH conjugates, precipitants, and solvents. Pages 10, 11 and 14 of Appendix A illustrate computer windows that include data fields. The data fields contain information relating to solutions, such as pH, the reservoir (solution) buffer, solvents and precipitating agent. Gester discloses a solution builder that manages information relating to solutions, and Claim 26 is anticipated by Gester.

Claim 27

Claim 27 is anticipated by Gester. Gester discloses a solution manager (the central processing unit 24) comprising a solution builder that can build a buffer solution or additive

solution. Pages 10, 11 and 14 of Appendix A illustrate computer windows that include data fields. The data fields contain information relating to solutions, such as concentration, volume and pH of reservoir (solution) buffer and precipitating agent (additive). Gester discloses a solution builder that can build a buffer solution or additive solution, and Claim 27 is anticipated by Gester.

Claim 31

Claim 31 is anticipated by Gester. Gester discloses a compound buffer manager (the central processing unit 24) that manages information relating to compound buffer systems. Gester discloses that the optical images and crystal parameters are stored in a database, and a relational database allows the data to be analyzed, sorted, correlated and manipulated under software control by the central processing unit 24. On pages 10, 11 and 14 of Appendix A, computer windows are illustrated that include data fields relating to compound buffers. The central processing unit 24 acts as a compound buffer manager to information relating to compound buffers, and Claim 31 is anticipated by Gester.

Claim 32

Claim 32 is anticipated by Gester. Gester discloses a compound buffer manager (the central processing unit 24) that includes a new compound buffer builder to capture data relating to compound buffer systems. Gester discloses that the optical images and crystal parameters are stored in a database, and a relational database allows the data to be analyzed, sorted, correlated and manipulated under software control by the central processing unit 24. On pages 10, 11 and 14 of Appendix A, computer windows are illustrated that include data fields relating to compound buffers. The central processing unit 24 acts as a new compound buffer builder to capture data relating to compound buffers, and Claim 32 is anticipated by Gester.

Claim 33

Claim 33 is anticipated by Gester. Gester discloses a chemical manager (the central processing unit 24) that manages information relating to chemicals. Gester discloses that the optical images and crystal parameters are stored in a database, and a relational database allows the data to be analyzed, sorted, correlated and manipulated under software control by the central processing unit 24. Pages 10, 11 and 14 of Appendix A illustrate computer windows that include data fields relating to chemicals, such as the drop additive, the reservoir

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buffer, and the precipitation agent. The central processing unit 24 acts as a chemical manager to store, analyze, sort, correlate and manipulate these crystal parameter in the database. Claim 33 is anticipated by Gester.

Claim 34

Claim 34 is anticipated by Gester. Gester discloses a chemical manager (the central processing unit 24) that includes a chemical builder to capture data relating to chemicals relating to crystallization trials. Gester discloses on page 5, line 29 to page 6, line 2, that the central processing unit 24 uses software templates displayed on the video monitor 36 to input data pertinent to the crystal specimen, including data related to chemicals such as detergents, additives, preservatives or reservoir buffer. Pages 10, 11 and 14 of Appendix A illustrate computer windows that include data fields which illustrates the capture of data relating to chemicals, such as the drop additive, the reservoir buffer, and the precipitation agent. The central processing unit 24 acts as a chemical builder to capture data relating to chemicals relating to crystallization trials. Claim 34 is anticipated by Gester.

Claim 35

Claim 35 is anticipated by Gester. Gester discloses a chemical manager (the central processing unit 24) that includes a chemical builder to capture data relating to chemicals including buffering agent or precipitants. Pages 10, 11 and 14 of Appendix A illustrate computer windows that include data fields which illustrates the capture of data relating to chemicals, such as buffering agents, pH conjugates, precipitants, and solvents. The central processing unit 24 acts as a chemical builder to capture data relating to chemicals including buffering agent or precipitants. Claim 35 is anticipated by Gester.

Claim 36

Claim 36 is also anticipated by Gester. Gester discloses an apparatus manager (the central processing unit 24) that manages information relating to an apparatus used in a crystallization trial environment. The central processing unit 24 controls the activation of the motorized mechanism 20 by generating appropriate signals on line 25 to control the position of the stage 22. The central processing unit 24 manages the stage 22, and Claim 36 is anticipated by Gester.

Claim 37

Gester is anticipated by Claim 37. Claim 37 requires a new apparatus builder for capturing data relating to a new crystallization plate. Gester discloses that the optical images and crystal parameters are stored in a database, and a relational database allows the data to be analyzed, sorted, correlated and manipulated under software control by the central processing unit 24. As disclosed on page 6, line 27 to page 7, line 30 of Gester, after acquiring 52 and storing 54 an image, the central processing unit 24 generates a signal to move a tray 18 so the next well is positioned in the focal window 16 of the camera 12. The image of the next crystal specimen 56 is then acquired 52 and stored 54. The central processing unit 24 captures data relating to a new crystallization plate. Claim 37 is anticipated by Gester.

Claim 71

Claim 71 is anticipated by Gester. Gester discloses a computer readable medium having a plurality of computer executable database managers for creating a database of the results of crystallization trials and a trial manager for entering trial information into database. As disclosed on page 6, lines 12 to 20 and illustrated in Appendix A, pages 10-11, the optical images of the crystals and crystal parameters are stored in a database. The database includes information such as protein type, protein buffer, reservoir buffer, drop additive, precipitating agent, and concentration, and this information is managed by the central processing unit 24 and stored in a database. Gester discloses a programmed data processor (central processing unit 24) including a program having a plurality of database managers. Gester also discloses an existing trial manager (the central processing unit 24) that manages information relating to an existing trial. As disclosed on page 5, lines 1 and 2, the central processing unit 24 controls the ability of the system to focus on the crystal specimen. It is disclosed on page 5, lines 16 to 18, that the central processing unit 24 also stores the crystal specimen image on a storage device 32. The central processing unit 24 also controls lighting of the specimen (page 5, lines 10-15). The central processing unit 24 manages the information relating to the existing trial, and Claim 71 is anticipated by Gester.

Claim 89

Claim 89 is anticipated by Gester. Gester discloses a computer readable medium having crystallization trial results stored thereon, including crystal type, crystal size, crystal count, and crystal shape. Gester discloses a central processing unit 24. As disclosed on page 6, lines 3 to 20, various parameters and the optical image for each crystal specimen are stored

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on-data storage medium, such as a hard drive 40 or data storage device 32. On page 5, line 27, it is disclosed that information regarding protein type of the specimen is inputted and stored. Gester also discloses on page 8, line 26 to page 9, line 11, that the computer processing unit 24 is programmed to analyze the optical image for the presence and count of protein crystals. The computer processing unit 24 analyzes the edges of the crystals and then analyzes the resulting data for perimeter symmetry, roughness and center of gravity. The size of the crystal is then determined by perimeter connectivity analysis. Gester discloses storing results relating to crystal type, size, count and shape, and Claim 89 is anticipated by Gester.

35 U.S.C. § 103

Claim 64 is obvious over Gester in view of Handlos (Exhibit C) or alternately White (Exhibit D).

Claim 64

Claim 64 is obvious over Gester in view of Handlos or White. Gester discloses a computer implementable method of creating a database of crystallization trials and related information. The method includes receiving by a dialog window trial data including information about crystallization conditions used in a crystallization trial (Pages 10, 11 and 14 of Appendix A illustrate the trial data relating to the crystallization conditions). The trial data and the crystallization results are stored in a database (the central processing unit 24, the data storage device 32, and the hard drive 40). Gester does disclose that the central processing unit 24 receives crystallization result data by a keyboard 34. As disclosed on page 5, lines 23 to 28, a technician employs a keyboard 34 to input pertinent data. Gester does not disclose receiving, by a verbal input device, crystallization result data including crystal type, size, shape and count. Handolos discloses a speech to text translator. A user speaks into a microphone, and the speech of the user is then correlated with text, and the text is displayed on a liquid crystal display. White discloses a method and system for voice-activated cell animation. As disclosed in column 4, lines 44 to 55, a user speaks into a microphone 118. The audio input is then transferred to a computer 102 and evaluated. It would be obvious to one having ordinary skill in the art to use the speech to text translator as suggested by Handolos or the verbal input device as suggested by White with Gester. Employing a verbal input device to input data into a database would require no typing from

the operator and would require less work from the operator. Claim 64 is obvious in view of Gester.

CLOSING

For the above reasons, the above-referenced Patent Application is hereby protested. Cited documents are attached, as is a form 1449. A copy of this Protest is being sent via mail to the Applicant in care of the attorney who filed the Patent Application:

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Respectfully submitted,
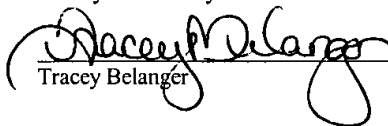
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CERTIFICATE OF MAIL

I hereby certify that the enclosed Protest Under 37 CFR 1.291(a) of Patent Application is being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to Assistant Commissioner of Patents, Washington D.C. 20231 on this 14th day of February.

Tracey Belanger

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